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USSR Report

ECONOMIC AFFAIRS

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INVESTMENT, PRICES, BUDGET AND FINANCE

INVESTMENT PLANNING UNDER CHANGING PRIORITIES SCRUTINIZED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 8, Aug 84 pp 64-73

/Article by A. Malygin, doctor of economic sciences: "Urgent Problems of Planning the Reproduction of Fixed Capital"/

/Text/ Intensification as a means of increasing the volumes of output through qualitative changes in productive forces places increased demands on the reproduction of fixed capital and improvement in the production potential. A build-up of capacities on a new technical basis with the maximum possible concentration of capital investments and labor and material resources and the priority of their allocation for existing production for the purpose of reducing the length, cost and periods of recovery of construction--all this obligates us to plan existing production and newly established enterprises as a single complex.

Improvement in the structure of fixed capital with the most efficient means of labor predetermines the need to improve the reproduction process according to its stages and forms. As an analysis shows, the relationship of the volumes of estimated cost according to stages is in the same proportion as the length of reproduction stages. In industry at present the extent of mastering of production capacities is approximately one-third of the volume of fixed capital and the estimated cost of enterprises under construction--two-thirds and of planned enterprises, two-fifths. However, when length norms are observed, in every stage there could be approximately one-half of the volumes of estimated cost (material and labor resources) of the established enterprises, which is exceptionally important for increasing the efficiency of the country's economy.

Long-term freezing of capital investments brings vast losses. At the present scale of construction and with the existing periods of establishment of production capacities the national economy annually fails to obtain the necessary output worth approximately tens of billions of rubles.

In this connection it is necessary to ensure a stable correspondence of the actual length of the planning, construction and mastering of production capacities and depreciation with existing norms. These norms are now used at enterprises. However, at sectorial and national economic levels they do not have corresponding analogs, which is one of the reasons for a violation of the norm regime of reproduction of fixed capital and the normative-balanced development of the entire reproduction process. This problem is solved methodologically and in the very near future it will have to be realized in planning practice.

In the acceleration of economic intensification the reproduction structure of capital investments is of especially great importance. The increase, renovation and efficiency of utilization of fixed capital and capacities depend on the predominance of the forms of reproduction ensuring their more rapid realization and recovery. The reproduction structure of capital investments is characterized by four basic forms: retooling, reconstruction, expansion and new construction. The content of each of them is determined by the nature of work and structure of created means of labor. The efficiency of reproduction forms depends on the length of realization of capital investments and the efficiency of created production capacities.

The increase in the capacities and volumes of production in a shorter period and with smaller expenditures than with new construction can be obtained in the very near future at existing enterprises as a result of their reconstruction and retooling. These forms of reproduction make it possible to most rapidly eliminate bottlenecks in the country's economy and to increase the efficiency of utilization of production capacities and their linkage and balance.

The urgency of solution of these problems was noted at the December (1983) Plenum of the CPSU Central Committee. It was suggested that ministries, the USSR State Planning Committee and the USSR State Committee for Material and Technical Supply in the shortest time develop special measures to eliminate bottlenecks and disproportions lowering the efficiency of utilization of the production potential. The Basic Directions in the Economic and Social Development of the USSR for 1981-1985 and for the Period Until 1990 as one of the major tasks of capital construction consider it necessary to allocate capital investments primarily for the reconstruction and retooling of enterprises. This requirement determines the policy of capital investments both during the current and long-term period. Therefore, there is a need for methodological approaches to the most quantitative development of advisable relationships of capital investments according to the forms of their utilization. The application of a certain form of reproduction is limited to the level of the production and technical potential of this sector.

Developed sectors are characterized by retooling and reconstruction and new sectors, new construction and expansion. A special form of reproduction--maintenance--is inherent in developed extractive industrial sectors. It should be taken into consideration in the planning of capital investments. The main feature of this form lies in the fact that it does not give an increase in production capacities, even though it reproduces them.

In an oriented allocation of capital investments it becomes necessary to develop their advisable boundaries according to reproduction forms, that is, a method making it possible to determine an expedient and, even better, normative reproduction structure of capital investments is necessary. A normative distribution of the latter into retooling, reconstruction, expansion and new construction is determined by the limits of capital investments and a prompt replacement of fixed capital, which depends on its normative life.

Each reproduction form aims at a solution of certain problems and can be considered the combination of construction projects with its technological structure meeting the need for certain types of fixed capital. Each reproduction form,

that is, a certain group of means of labor depending on the life of the reproduced capital and the technological structure, is characterized by its own periodicity of reproduction. The necessary proportions of reproduction forms in the total volume of capital investments depend on the periodicity of the need for capital created according to each form and simultaneity of realization of all forms and the general source of financing. On the basis of the actual life the statistical actual structure is confirmed and the normative structure is found by means of the normative life of fixed capital. A change in the reproduction structure for the purpose of bringing it closer to the normative structure leads to a considerable improvement in the technological structure of capital investments. Under present conditions this improvement is one of the factors making it possible to increase the total volume of capital investments in the national economy.

At the end of the 10th Five-Year Plan in projects for production purposes, without taking into consideration expenditures on equipment not included in the estimates of construction projects, the share of capital investments for the retooling and reconstruction of existing enterprises comprised 32.4 percent, for the expansion and maintenance of existing capacities, 31.8 percent and for new construction, 35.8 percent. About 65 percent of the productive capital investments were allocated for existing production according to intensive forms. This is insufficient for the further intensification of production.

Calculations show that during 5 to 7 years it is possible to raise the reproduction structure of capital investments to the normative level, that is, to significantly increase the share of intensive reproduction forms. For retooling the share of capital investments can rise to 28 or 30 percent and for reconstruction, to 27 or 29 percent. At the same time, the share of expenditures on new construction can be lowered to 19 or 20 percent and on expansion and maintenance, to 23 or 24 percent. As a result of the attainment of a normative structure of productive capital investments, up to 78 or 83 percent of their total volume will be allocated for existing production. At the same time, the effectiveness of expenditures can be increased more than 1.5-fold.

Such a structure creates limits for the saturation of production with capital investments on the basis of the normative life of fixed capital (depreciation norms) and the regularly determined withdrawal and renovation of the production apparatus. The annual withdrawal of fixed capital can increase to 2.5 or 3.5 percent.

The technological structure of capital investments, basically, as the consequence of a change in the reproduction structure in the future will approximate the technological structure of the prevalent reproduction forms--reconstruction and retooling. The proportion of construction and installation work in the national economy and the production sphere can be lowered from 50 to 40 and from 40 to 31 percent respectively. Such a decrease is possible with a significant limitation of new construction.

Apart from other reasons, the reliability of development of a progressive reproduction structure of capital investments depends on the clarity of definition and content of work on reproduction forms. Today these definitions are limited to qualitative descriptions of the content and direction of work. Quantitative criteria for a description of reproduction forms are not provided by existing methodological directives for the development of plans. We will try to analyze the content and criteria of work on basic reproduction forms.

The retooling of existing enterprises differs from other forms by the speed of realization of capital investments. Basically, it is carried out with a low proportion of construction work and ensures the introduction of the achievements of technical progress and a return on the invested capital in the shortest period. Improvement in existing enterprises through the introduction of new equipment and increase in output on this basis--this is the essence of production intensification.

As a result of retooling the active (productive) part of fixed productive capital is built up and an increase in productive capacities is ensured. As a rule, retooling is carried out without an expansion of production areas for the purpose of raising the technical level of individual production sections, units and installations through the introduction of new equipment and technology, mechanization and automation of basic and auxiliary production processes and loading-unloading and transport operations and a rapid replacement of old equipment with new one.

The builtup of capacities and increase in output through the retooling of enterprises depend on the nature of production and the need for output. As a rule, this buildup with planning for every 5-year period comprises no less than 20 to 30 percent of the capacities existing at the beginning of the period. For mining and petrochemical industry enterprises it is taken at a level of 10 to 20 percent of the capacities at the beginning of the 5-year period.

According to existing definitions of reproduction forms, the reconstruction of an enterprise includes its full or partial reequipment and reorganization carried out according to a single plan for increasing the capacity or productivity, as a rule, without expanding production areas, but with the construction, in case of need, of new and expansion of existing projects for auxiliary purposes. Reconstruction is accompanied by the replacement of obsolete and worn out equipment, mechanization and automation of production and elimination of bottlenecks in its technological links and auxiliary services. Reconstruction can also be carried out for the purpose of changing the enterprise's production structure and the organization of the production of new products at existing production areas.

Reconstruction also includes the construction of new shops and projects of the same capacity or that corresponding to the volume of end output of liquidated shops and projects, whose further operation in terms of technical and economic conditions is considered inadvisable. With this reproduction form expenditures on the replacement of obsolete and worn out equipment, as well as on retooling, pertain to expenditures on reconstruction. In cases when it becomes necessary to simultaneously reconstruct and expand enterprises, during the preparation of planning estimates the reproduction form that is taken into consideration in title lists during the planning of capital construction is determined depending on the prevalence of appropriate operations.

In the last few years the share of capital investments for reconstruction has remained essentially unchanged despite its widely known positive experience in various sectors and the recommendations and directives of management bodies

for an increase and improvement in the capacities of existing enterprises through reconstruction and retooling. There are objective reasons hampering widespread reconstruction work. Inconvenience in the performance of construction and installation work under the conditions of existing production and deterioration in the conditions of fulfillment of the production program by reconstructed enterprises are the most important among them. In such a situation neither the client nor the contractor are interested in the development of reconstruction work and, moreover, its efficiency often is not high. Whereas in technical retooling expenditures are connected mainly with the replacement of equipment, that is, the active part of fixed capital, in reconstruction the share of expenditures on equipment is lower. A considerable part of the expenditures are connected with the construction of buildings and structures, that is, the passive part of fixed capital.

The construction carried out according to a new plan of second and subsequent stages of an existing enterprise, additional production complexes, new, or expansion of existing, shops for basic production purposes, auxiliary and service production facilities, projects and utility lines on a given territory or sites adjoining it pertains to the reproduction form called expansion. Its object is to increase the production capacity (productivity and carrying and holding capacities of buildings) of an existing enterprise. As a rule, expansion is carried out during a shorter period and with lower expenditures as compared with the establishment of similar capacities through new construction. It makes it possible to raise the technical level and to improve the technical and economic indicators of an enterprise.

In expansion a higher share of capital investments for the establishment of the active part of fixed capital is ensured than in new construction. The technological structure of expenditures occupies an intermediary position between the structure in reconstruction and new construction.

Expansion of existing enterprises is one of the most widespread forms of reproduction. Essentially, however, the share of capital investments for these purposes has remained unchanged during the last decade.

The erection of enterprises, buildings and other projects carried out on new sites and according to initially approved plans pertains to new construction. If the plan is changed before the commissioning of capacities for the output of basic products, the continuation of enterprise construction is considered the same reproduction form.

During the periods of the country's industrialization and the creation and accelerated buildup of the production potential new construction was of predominant importance. Even today the share of capital investments in it remains the biggest. Under present conditions, however, there is a stable tendency toward a decrease in the share of capital investments for these purposes. Today new construction is permitted for the realization of fundamentally new technical solutions, whose implementation is impossible at existing enterprises, and for the development of new mineral deposits and new territories. Therefore, under the conditions of intensification of public production vast importance is attached to it.

The essence of new construction is manifested in an advanced technical basis and is determined by the establishment and development of fundamental new sectors and production facilities provided with the latest equipment and technology and by the drawing of new types of raw materials, fuel and energy into the economy. The technological structure of capital investments in new construction corresponds to the latest level of technical progress. It expresses the relationship of the cost of development of modern machinery and equipment, buildings and structures forming part of the fixed productive capital of appropriate national economic sectors. A decrease in the share of new construction is connected with the existence of the country's vast production apparatus, developed material and technical base and limitation of labor and material resources.

Thus, the presented definitions of reproduction forms are based on several criteria, that is, novelty of the plan, area of construction in progress, change in basic and auxiliary shops and structures and types of performed operations. As a rule, a combination of several, not individual, criteria is inherent in a specific form, a reproduction form being singled out according to the predominant magnitude of general criteria. In practice, with existing definitions it is difficult to draw a clear boundary between reconstruction and expansion and between expansion and new construction. Here the problem lies in the fact that the conventionality of the definition makes it possible to arbitrarily classify specific construction with a certain reproduction form.

Since there is no objective economic evaluation of the latter and the version of the high efficiency of a specific reproduction form is created on the basis of individual examples, negative phenomena arise during the planning of capital construction. Depending on the name of the form the plans of construction projects receive the preferential opportunity of including them in construction plans. Such phenomena prevent the formation of a normal construction start of ministries and departments and distort the actual basis for the distribution of capital investments throughout sectors.

Of course, if in each specific case the economic efficiency of a construction variant is determined and on its basis the construction project is included in the plan, it would seem that the classification of this construction project with a specific reproduction form is of no great importance. However, this is not so. A reliable content of the reproduction form in terms of the volumes of work on the combination of specific construction projects makes the reproduction structure of capital investments one of the effective means of managing the reproduction process and increasing the effectiveness of expenditures.

It is not accidental that many economists propose more specific criteria for the classification of construction according to reproduction forms. Proposals on the division of the latter according to the proportion of the active part of the created fixed capital in capital investments spent on the project under consideration, as well as according to the degree of replacement of the fixed capital of reconstructed enterprises, are known. Some economists

do not at all consider it necessary to single out reproduction forms, but propose that all types of construction be called labor retooling and change over to macroeconomic calculations of its dimensions on the basis of a comparison of manpower and work places. These refinements of the reproduction structure of capital investments, as well as its rejections, are of a search nature. They have not emerged from the research stage and are very far from the practice of capital construction planning. The planning and management of the reproduction process require a reliable classification of existing reproduction forms according to certain criteria. Criteria, which could ensure a changeover from a qualitative description of the forms of reproduction of fixed capital to its quantitative evaluation, are now needed.

The reproduction structure of capital investments as one of the qualitative aspects of capital construction and the reproduction process is not only an important aspect of reflection of the development of the intensification of these processes and characteristics of utilization of capital investments. It can be an effective means of centralized management of capital construction, an intensive formation of an efficient combination of the fixed capital of enterprises and, ultimately, a convenient tool of planning the development of existing production and new construction as a single whole.

At the level of sectorial and national economic planning and statistical accounting the reproduction structure of capital investments is considered a component of their volumes used in projects under and planned for construction. Indicators of the reproduction structure are of a consolidated nature. For this reason it is a tool of sectorial and national economic planning and management. The construction start and distribution of capital investments throughout construction projects determine it today. However, the combination of construction starts is formed not only depending on the need of the national economy for various types of products, but also under the effect of the structure of capital investments. Direct and reverse connections have a material embodiment realized by the existence and activity of all existing production, primarily of the enterprises of the construction complex. Only on the basis of a reliable reproduction structure of capital investments (as a national economic category) is it possible to objectively plan the replacement of fixed capital and the development of sectors providing capital construction with materials and equipment.

At the same time, the reliability of the reproduction structure of capital investments and the construction start, that is, establishment of clear boundaries between reproduction forms, is of exceptionally great importance. It seems that the criterion reflecting the content of work on the creation of fundamentally different means of labor should be the most suitable classification criterion of construction forms making it possible to determine their quantitative boundaries. The technological structure of the cost of the enterprises under construction and in mass construction the technological structure of capital investments as well can be such a criterion. It would be advisable, as a supplement to the adopted definitions of reproduction forms, to have their quantitative characteristics according to the technological structure. Naturally, it cannot be unambiguous and identical for all national economic sectors. In each sector for each form it is necessary to

establish limits of the technological structure according to one of its constituent elements, for example, according to the active part of capital, by which planning organizations would be guided when classifying a future construction project according to the data of substantiating materials or a ready engineering plan with a specific reproduction form.

Of course, boundaries of reproduction forms cannot be established arbitrarily. In our opinion, here it is necessary to take into consideration the technological structure according to the reproduction forms of construction carried out in recent years.

Practice has long established that there is a direct connection between the reproduction and technological structures of capital investments. An increase in the proportion of the value of equipment in the technological structure of capital investments and the active part of fixed capital is attained as a result of an improvement in the reproduction structure of capital investments and the corresponding combination of construction projects. As expenditures on retooling are increased and new construction is decreased, the share of equipment in the technological structure rises and the share of construction and installation work declines.

For a number of reasons a change in the specific structure of existing fixed capital is not manifested immediately. Its dynamics is affected by the length of realization of capital investments, the relatively small part of newly commissioned capital as compared with its entire volume and the extent of withdrawal of obsolete and worn out means of labor. For example, in industry in the last 8 to 10 years the proportion of the active part of fixed productive capital has remained at the level of 38 to 38.6 percent. During this period its passive part has increased in agriculture, while in other sectors a marked change in the specific structure has not been observed. Stabilization of the specific structure of fixed capital can be the consequence of the replacement of retooling with the expansion of existing production facilities on an old technical basis, which once again confirms the need for the existence of a reliable content of reproduction forms during capital investment planning.

According to our calculations, during the 10th Five-Year Plan the withdrawal of fixed productive capital was almost one-half of its normative level. The bulk of the machinery and equipment was assigned for new construction and expansion of enterprises, not for the replacement of disused capital. Despite the marked change in the reproduction structure of capital investments, a corresponding effect on an increase in the withdrawal and improvement in the specific structure of capital did not occur during this period.

The need to increase the withdrawal and share of replacement in capital investments is due to the fact that in the last few years fixed capital has been replaced more slowly than envisaged by existing norms of depreciation for renovation and by the rates of growth of fixed capital. Depreciation deductions on renovation are utilized in an ever greater volume for an unjustified increase in capital. The importance of an accelerated replacement of fixed capital results from the fact that during the fulfillment and overfulfillment of production plans at existing enterprises there is a decrease in the effectiveness of the expenditures of production resources as a result of the operation of old machinery and equipment.

The development and introduction into production of more productive and relatively cheaper, new machinery and equipment, annual changes in wholesale prices of individual types of equipment and mass changes in wholesale prices of industrial products as of 1 January 1982, as well as bringing into force estimated, new norms and higher prices in construction as of 1984--all this will inevitably lead to big differences in the evaluation of the means of labor in operation. In the end the final results of the financial and economic activity of the same types of enterprises and organizations will be different and, consequently, the evaluations of their work will be different as well. Therefore, for an acceleration of the replacement of fixed capital there is a need for its one-time reevaluation and refinement of the norms of depreciation deductions. Here the main thing lies in the attainment of the maximum possible correspondence in time of the value and physical turnover of means of labor and in the creation of the same conditions for the development of cost accounting relations for all enterprises.

An efficient and prompt replacement of fixed capital contributes to an increase in its use value, saving of live and embodied labor and rise in its productivity. With the intensification of public production the replacement of means of labor is anticipated only through implements of labor created on a qualitatively new technical basis.

This task should form the basis for the planning of the reproduction structure of capital investments. To improve the latter, it is necessary to know the patterns in and reasons for its change. The study of this structure is based on objective patterns in the reproduction of fixed capital and determination of the tasks of each of its forms with a clarification of the types of means of labor that are principally reproduced according to a specific form.

It is well known that various types of means of labor are worn out and depreciated during different periods. For example, in 1979 the average life of industrial and productive fixed capital (depreciation period calculated according to the volumes of capital and depreciation added to renovation) was 22.6 years and the life of buildings, 62.5, structures, 27.8, transmission gear, 24.4, machinery and equipment, 13.3 and transport facilities, 10.9. The actual life of fixed capital does not always coincide with depreciation periods. However, an efficient reproduction of fixed capital requires its maximum approximation. In connection with this it regularly must be replaced in accordance with the normative life and rates of increase in the commissioning of new capital.

The need for a periodic replacement of disused individual types and groups of fixed capital and for an increase in new ones determines the principle of distribution of capital investments. The latter are the only source of reproduction of capital according to all forms. Therefore, it is important to determine the shares of capital investments realized according to each of them. It seems that the frequency of the need for reproduction forms depends on the life of the fixed capital reproduced respectively. It is logical to consider the content of each form the combination of construction projects with its technological structure, which meets the need for certain types of fixed capital. Therefore, each form, depending on the normative life of capital and

the technological structure, is characterized by a certain periodicity of reproduction. Depending on the periodic need for the created capital inherent in the construction start and the simultaneous realization of all the forms and the general source of financing it is possible to determine the necessary share of each form of reproduction in the total volume of capital investments, that is, the reproduction structure of the latter. For the development of planned forms and indicators this can be represented in the form of the following expressions:

$$\begin{aligned} a + b + c + d &= 1; \\ b : T_1 &= a : T_2; \\ c : T_1 &= a : T_3; \\ d : T_1 &= a : T_4; \end{aligned} \qquad (1)$$

or

$$a\left(1 + \frac{T_1}{T_2} + \frac{T_1}{T_3} + \frac{T_1}{T_4}\right) = 1, \qquad (2)$$

where a, b, c, d are the shares of capital investments for new construction, expansion, reconstruction and retooling respectively, in fractions of a unit;

are the average lives (depreciation periods) of fixed capital created respectively as a result of new construction, expansion, reconstruction and retooling, in years.

In any sector of material production (ministry, department and association) the calculation of the reproduction structure of capital investments in accordance with such a scheme presupposes, as noted above, the use of the life of fixed capital reproduced according to each form. For this the average normative lives (depreciation periods) included in expressions (1) and (2) are determined by means of the technological structure of the estimated value of enterprises established according to each form and the normative lives of active and passive fixed capital. At the same time, the method of the weighted mean harmonic quantity is used.

$$\overline{T} = \frac{1}{\frac{C}{T_p} + \frac{M}{T_a} + \frac{O}{T_p}}, \qquad (3)$$

where $\overline{T}$ is the average sectorial life of fixed capital reproduced according to one of the reproduction forms, in years;

C is the proportion of construction and installation work in the volume of capital investments according to the calculated reproduction form, in fractions of a unit;

M is the proportion of machinery and equipment in the volume of capital investments according to the calculated reproduction form, in fractions of a unit;

O is the proportion of other expenditures in the volume of capital investments taken in the amount of 0. to 0.15, in fractions of a unit;

T_p, T_a is the sectorial life of the passive and active parts of fixed capital respectively, in years.

From the calculation scheme it is evident that each form reproduces a specific combination of fixed capital in terms of its life. Therefore, in planning it is possible to determine a reproduction structure of capital investments, which would regularly meet the normative need of existing enterprises for a constant renovation and development of the production apparatus.

As a result of the change in the reproduction structure, for the purpose of bringing it closer to the normative structure, in the future it is necessary to expect a significant reorganization of the technological structure of capital investments. It will approximate the prevalent forms of reproduction, that is, reconstruction and retooling. Its calculation in a ministry, department and association, depending on the change in the reproduction structure, can be performed by means of the following expressions:

$$C_c = a \cdot C_n + b \cdot C_{em} + c \cdot C_{rec} + d \cdot C_r; \quad (4)$$

$$M_c = a \cdot M_n + b \cdot M_{em} + c \cdot M_{rec} + d \cdot M_r; \quad (5)$$

$$O_c = 1 - (C_c + M_c), \quad (6)$$

where C_c, M_c, O_c are the shares of construction and installation work, value of machinery and equipment and other expenditures in the total volume of productive capital investments respectively;

C_n, C_{em}, C_{rec}, C_r is the share of construction and installation work on new construction, expansion and maintenance, reconstruction and retooling respectively;

M_n, M_{em}, M_{rec} m M_r is the share of expenditures on machinery and equipment for new construction, expansion and maintenance, reconstruction and retooling respectively.

Calculations according to the expressions presented show that the proportion of capital investments for machinery and equipment, when the normative reproduction structure is attained, can be increased in the production sphere by seven to nine points as compared to the present level. At the same time, the proportion of construction and installation work will decrease respectively. Apparently, in the very near future the normative level of the reproduction and technological structures of capital investments could ensure the rates of increase in the latter, mainly through a rise in the share of expenditures on machinery and equipment. Therefore, the sectorial structure of capital investments should also change toward an increase in expenditures in machine building.

The approach to the planning of the forms of reproduction of fixed capital set forth makes it possible to determine the limits of capital investments for new construction, expansion and maintenance, reconstruction and retooling, as well as for construction and installation work.

A comparison of the normative and actual reproduction structures of capital investments directs planning bodies toward the attainment of their most efficient utilization. A regularly determined structure of capital investments arms planning bodies with a reliable means of managing the reproduction

process, outlines the boundaries of saturation of existing production with them and contributes to the substantiation of proportions for compensation for the withdrawal and replacement of fixed capital, construction and installation work, equipment and machinery and development of the building materials industry, the construction industry and machine building sectors.

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KRONROD ANALYZES PRODUCTION INTENSIFICATION PROSPECTS

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 9, Sep 84 pp 102-112

[Article by Ya. Kronrod, doctor of economic sciences, professor, under rubric "Questions of Economic Theory": "Theoretical Analysis of the Prospects for Intensifying Socialist Production"]

[Text] The possibility and necessity of the complete intensification of social production and the maximum increase of its effectiveness, and the guaranteeing on that basis of the steady rise in the national standard of living, is the expression of the actions of objective economic laws at the present-day level of socialism. All this influences the vital importance of a broad circle of major theoretical problems in the dynamic development of the direct process of socialist production. Certain very important ones among them -- the essence and forms of the intensity of socialist production, the conditions and factors influencing the rates of its development -- are the subject of our consideration.

The directly social nature of production, its subordination to the goal that is defined as the basic economic law of socialism, and the specifically socialist nature of the economic interests and incentives -- all this finds its expression in the possibility and necessity for its development as the process of an increasingly intensive type. The economy of developed socialism creates all the necessary conditions for the full realization of that natural law.

With the extensive type of production, its volume increases as a result of an increase in only the quantity of the factors being used, that is, the additional means of production and manpower. The technical and organization structure of the funds remains unchanged.

The intensive type of production is formed as a consequence of its technical improvement and correspondingly the increase in the productivity of social labor, the material basis of which is the greater and greater arming of manpower with means of labor[1]. It is achieved by two paths: the quantitative, when there occurs a greater and greater equipment of manpower with the means and tools of labor of a constant technical level, which, however, leads to an increase in the social productivity of labor as a result of the more complete and universal equipping of it with technology (progress of mechanization of

labor on the achieved technical base); and the qualitative, when labor is equipped with means of production of a higher technical level as compared with the existing means. A special variety of the intensive type of production is the attainment of an increase in labor productivity by means of the progress of technological processes, the improvement of the organization of production and labor independently (without changing the production factors) or in combination with one of the previously mentioned forms for changing them (growth on a constant technical basis, with the technical progress of the means of production). The intensive type can be realized in three forms: with faster rates of increase in labor than the growth rates of the means of production (permanent assets) equipping the labor, when there is an economizing of the functioning means of production per unit of product being produced, that is, this is the assets-saving form; with identical growth rates for labor productivity and the volume of the functioning means of production -- the assets-neutral form of the intensive type of the development of production; with rates of development of labor productivity that are slower than the rates for the buildup of the assets to be used -- the assets-increasing, or, as it is still called, labor-saving form (when the increase in the specific size of the functioning assets in terms of a unit of product guarantees the corresponding specific saving of live labor characteristic of the intensive type of production in the three named forms, that is, from the point of view of the movement of the specific values of the fixed assets in terms of a unit of live labor (assets-saving, assets-neutral, and assets-increasing, or labor-saving), is of substantial economic importance. However, the decisive characteristic is specifically the one that reflects the internal factors of the intensification of production, that is, whether it is carried out with a constant technical basis, only as a result of the progress of the completeness of mechanization and automation, or with a progressive technical basis, that is, when equipping production with technology that is more improved and more progressive than the existing technology.

One might object that what is important is not the means, but the result, that is, the fact that, by a more or less economic method of application of the assets, one achieves an increase in production and labor productivity, and how those results were achieved in the event of identical assets-intensity -- on a technically progressive basis or a constant technical base -- is allegedly a matter of indifference. That is gravely erroneous.

In view of the contradictions in consumer value and value, it is always important to take into account the technical basis which, in the value form, is expressed by assets. With one and the same value of assets, this technical basis can be extremely different, and, correspondingly, first of all, the labor conditions are extremely different; secondly, the possibilities for improving the quality of the output being produced; thirdly, and more substantially, the long-range economic possibilities for the progressive development of production, etc. are different. Therefore, it seems to us, it would be desirable to distinguish between two basic forms of the intensive process of production: on a technically progressive basis (assets-saving, assets-neutral, and assets-increasing, or labor-saving); on a technically constant basis (also in those three versions).

In recent years certain economists have advanced a narrowed understanding of the intensive type of production, which is treated as a means for increasing production and labor productivity only as a result of the improvement of technology and technological processes. But every increase in production as a result of an increase in labor productivity as a consequence of a relative increase in the volume of means of production to be employed, with the elimination of the factor of technical progress, is viewed as an extensive process. This, of course, is not so. The factors of growth of social productivity of labor are factors of the intensive growth of production, but the growth that is economically most effective is the growth that is achieved on the basis of the technical progress of the means of labor and the technological processes, as well as progress in the organization of production and labor.

The economy of developed socialist creates, on the basis of the organic combination of the achievements of scientific-technical progress and the advantages of socialism, the most favorable conditions and bears within itself the completely natural need for the changeover to the universal intensive type of socialist production. This does not mean, as people sometimes assume, that previously the production developed only extensively. To the extent that the growth in the social productivity of labor was achieved, the process of development of production within those confines was intensive. The crux of the matter is that, under socialism, the action of the law of the growth of the social productivity of labor, that is, the systematic economizing of past and live labor expended in terms of a unit of output [2] becomes unconditional (unlike the situation under capitalism, where it is not such)[3].

However, the intensive type of development of production at the previous stages of socialist management was still combined broadly with the extensive type. To a certain degree that combination is in general inevitable. But under conditions of developed socialism, the significance of extensive factors is sharply narrowed, and in the final analysis they are shifted only into the sphere of the current renovation of production and auxiliary forms of its adaptation to the changing needs (capital repair of the equipment, overcoming of bottlenecks, etc.). The intensive factors are becoming the dominant ones. The possibility for this lies in the scientific-technical revolution, in the broad development of scientific-technical progress in all spheres of production. Economic necessity lies in the fact that socialist cooperative action in labor is created, with that cooperative action, under conditions of developed socialism, resting upon large-scale machine production, in which there is a greater and greater development of elements of a specifically socialist nature: the crowding out of heavy, noncreative labor by machines, that is, the saturation of production with machine complexes and devices based on various social motivations; the subordination of the processes of the development of the machine base of production to the attainment of higher labor productivity with the complete development of the processes of the replacement of the partial worker by a universally developed one who fulfills labor of a broad professional area of specialization, labor that is increasingly saturated with intellectual content. The necessity for the intensive type of development on a technically progressive basis is rooted, in the final analysis, in the fact that developed socialism naturally rests upon

a specifically socialist material-technical base and manpower that is adequate to the use of that base. As a result, opportunities are created for the intensification of production, which rest, first of all, upon the complete and thorough technical progress of the assets, and, secondly, on the assets-saving type of that progress. But that is only an opportunity. It still has to be converted into actual reality, into a prevailing tendency. Especially when that is opposed by many extremely serious countertendencies which can influence, in the event of the technically progressive type of intensification of production, its assets-neutral and even assets-increasing form. They include, first of all, technical progress itself, which requires in a number of instances a relatively greater specific buildup of value per unit of production capacity of new systems of machinery and entire production complexes (by way of an example, one can point to the complete automation of production, the development of nuclear power engineering, the changeover in the extractive branches to poorer deposits, etc.); the primary comprehensive mechanization and automation of labor, which replaces manual or relatively unmechanized labor, which mechanization and automation lead to the specific growth of assets per unit of the product to be reproduced; the technical equipment directed at the facilitation of labor, the increasing of its meaningfulness, the guaranteeing of its safety, etc.; the necessity for the organic combination of the development of production and the carrying out of ecological programs that are intended to prevent the pollution of the environment (these programs require greater and greater capital investments).

At the same time, there are also in operation such factors in the growth of assets-intensity (at least for the foreseeable historical period) as the mastery of the eastern and northern part of the country, with their tremendous initial investments, the need to create a developed production infrastructure (transportation network, communication, storage facilities, etc.); the historically created task of the universal modernization of the production apparatus on the basis of the use of the achievements of the scientific-technical revolution (in particular, complete automation with its flexible production systems, robotics, information technology, etc.), the need for the prolonged, accelerated development of branches with a relatively increased assets-intensity (fuel and energy complex of transportation, agriculture, etc.); the replacement of the extensive type of production by the intensive type (especially in agriculture), when the replacement process itself causes an increase in assets-intensity, etc.

Thus, it would be incorrect to orient oneself only on any one type of the intensive type of the functioning and development of socialist production, since, in the overall national-economic process, they exist jointly in one or another combination.

Of course, with all other conditions being equal, it is extremely important to wage a constant struggle to achieve an increase in the return on assets and on materials in production. This represents a source of tremendous reserves that are linked with the better organization of production, the prevention of losses, the improvement of technological processes, high organizational spirit, and labor discipline. One of the conditions for "...economic upsurge," V. I. Lenin emphasized, "is the increase in the workers' discipline,

their ability to work, the efficiency and intensity of labor, and its better organization"[4].

Thus, the combination of the types of the technically progressive type of functioning of the process of production can be different, and, within the confines both of the national economy and each branch of production, alternatives are possible. In the growth of economic effectiveness, that is, the growth of the relationship of the results of production to the mass of composite (current and one-time) expenditures for their attainment with the optimal social result -- the satisfying of needs -- one finds the expression of which of the alternatives is preferable during the particular period, that is, corresponds to the requirements of the economic laws[5].

Very important elements of socialist production (its factors, basic links in its progress, results) can be viewed in their given qualitative state, that is, chiefly in the static aspect. This is a completely natural abstraction. However, another aspect is also possible -- the aspect that is chiefly dynamic, when that process itself, its factors, and the results are viewed in motion, in progressive development. In this instance we shall be considering the dynamic aspect specifically of the most immediate process of production, that is, the ascertaining of those of its aspects and those elements of forms which create, as it were, the connecting link between the immediate process of production and the process of reproduction. It is precisely in this aspect that K. Marx viewed the link between accumulation and the immediate process of production, isolating accumulation abstractly, that is, as a factor in the immediate process of production.

The direct process of production, when that process occurs under the effect of the factors and forms of accumulation, acts as the material carrier of economic growth and combines, in the unity and interaction of all the concrete forms of the expression and current of expanded reproduction, the actions of its laws and natural regularities. But one also in mind here its dynamic nature, which forms the initial factor in economic growth. In this regard it is desirable to view two questions: the question of the essence of the direct process of production as the basis of economic growth, the question of its generalized expression in the given aspect; and the question of the factors that direct its dynamic nature, which finds expression in the economic growth. At the same time, it is desirable also to view in the light of the theoretical analysis of these questions certain essential concrete-economic circumstances that determine the dynamic nature of the direct process of production (economic growth) under the present-day conditions of developed socialism.

Economic growth is a complicated and multilevel phenomenon. It (if one has in mind its intensive type) rests materially upon the quantitative and qualitative changes in production as a result of the accumulation and renovation being carried out on the basis of technical progress in the substantive factors of production, the increase in the bulk of means of production (tools of labor and objects of labor involved in that process, and their constant technically progressive changes (evolutionary changes and revolutionary scientific-technical reforms). At the same time they are expressed in all these phenomena and processes. What acts as the indicator of

the dynamic nature of the factors of the direct process of production under socialism is the accumulation of the masses of the functioning constant (fixed and working) assets. The results of the development of the economy are expressed through the indicators of quantitative growth and the qualitative improvement of the global aggregate of the elements of social wealth -- its production part, that forms the production potential of socialist society, its material-technical base.

In addition to the substantive factors of production, economic growth is influenced by and at the same time is expressed in the quantitative and qualitative state of the personal factor of the direct process of production. The ties here are extremely complicated and the processes that exert an effect upon them are variously directed.

The overall law is such that the higher the qualitative parameters of the personal factor (level of proficiency, nature of labor functions, particularly the degree of intellectualization of labor, degree and nature of provision of the manpower with means of labor, working conditions, etc., and the level of labor productivity that results from all this), the more -- relatively speaking (as compared with the mass of the substantive factors of production) -- it acts as a quantitatively lesser factor in economic growth [6]. But, we emphasize, it is a factor that is only taken from the direction of the quantity of manpower that has been involved in the direct process of production. As a factor of economic growth -- both as its cause and as its consequence -- the role of the personal factor, first of all, is in the final analysis the decisive one[7], and, secondly, it is constantly growing. This receives a qualitatively new nature as a result of the combination of the achievements of the scientific-technical progress and the advantages of socialism, which creates the opportunities for converting labor into creative labor, with high productivity and the harmonious development of the productive functions (greater and greater combination of the functions of mental labor and physical labor on the basis of the releasing of the intellectual-creative potentials of the worker). It is precisely under socialism that one sees the real embodiment of K. Marx's brilliant principle to the effect that "what always acts as the final result of social production is society itself, that is, man himself in his social relations... The direct process itself in production acts here only as a factor..., but individuals act as its subjects... We are confronted here by their own process of movement, in which they renew themselves to the same extent to which they renew the world of wealth that is being created by them"[8].

That is wherein lies the fundamental necessity of considering the entire process of socialist production not under a narrow technical-economic angle of vision, but in broad socioeconomic confines as a process that is completely subordinate to the rise of the standard of living and the free development of society and of every individual.

Also linked with the dynamic nature of the personal factor of the direct process of production are the demographic processes -- both as one that influence to one degree or another in the final analysis the movement and structure of the masses of that factor, and thus of economic growth, and also as a result of the latter.

Economic growth, if one has in mind the process of production, includes to a greater and greater extent science as a direct productive force, both as the scientific knowledge that has been substantivized in the factors of production, and as those links in applied science which enter the process of production with their function of introducing scientific knowledge into it. The scientific potential of society (taken from the previously indicated aspect) represents the increasingly more important, and under present-day conditions the decisive, factor of economic growth both as its cause and as a component element in the global aggregate of its results.

Finally, it is important to consider the fact that economic growth depends nowadays, and in the long-term view will depend to a greater and greater degree, both upon the conditions that determine it, and as the results that constitute it -- upon the new and rapidly developing sphere of special factors and the results of the direct process of production, upon the means of labor that have been directed to the maintenance of the ecological balance, and the results of that process themselves.

Economic growth is influenced by and includes within itself as elements that form it the results of the direct process of production in the form of the global social product and net product (national income).

The enumerated components of economic growth as forms of movement of the direct process of production act simultaneously also as causal factors and components of that growth, as elements of its results. But this is only one aspect of its process. Another aspect is the dynamic nature of the volume of the national consumption funds (current and long-term), including all the conditions for economic welfare (social infrastructure, material conditions for the development of the spiritual activity of society and the nonproduction sphere).

Thus, the variety of the factors and results of the dynamics of the direct process of production, which act as the carriers and results of economic growth, characterizes the qualitative complexity of this phenomenon, its multidimensionality, its irreducibility to any one element, whether it be the dynamics of the production potential,the global social or net product, the integral consumption fund, etc. All this, however, does not mean that economic growth, as the form and result of the dynamics of the direct process of production, does not possess a single inner essence. Under conditions of socialism, it is expressed by the basic economic law of socialism. Its essence is the directly social nature of the process of production and appropriation of the social product, and the higher goal of socialist production which is influenced by them -- factors which are determined by public ownership of the factors of production.

The result of capitalist production, which is determined by its basis law, is the accumulation of capital, the norm of its growth. However all the other parameters of economic development form, the basic law subordinates all the processes to the resultant growth of capital.

The integral result of socialist economic growth forms in a fundamentally different way. There does not exist here, and by its very nature there cannot exist here, any one predominant parameter that determines it. Attempts to define the dynamics of the direct process of production in terms of any one -- albeit generalized -- parameter (for example, the dynamics of production assets, the dynamics of the global social product or the net product, the dynamics of consumption funds, etc.), cannot fundamentally resolve this task. The fact of the matter is that, on the one hand, although all the previously considered components are inseparably interrelated to one another, they all possess a relative independence of movement. Changes of each individual component can occur in various directions: production assets can grow, but the personal factor of production can be stable; the production potential can be stable, but the consumption fund (for a certain period of time) can expand; etc. On the other hand, the basic economic law of socialism, and the production goal that is defined by it, require that inwardly subordinated interrelationship of all components that would guarantee the maximum realization of the goal of socialist production (in the combination of the current cycle and the long-term cycles of production).

But there follows from this the conclusion: the dynamics of the direct process of socialist production and the dynamics of economic growth that reflect it can be expressed only on the basis of the combination of the aggregated indexes for the dynamics of all the basic components that express these processes, and in their optimal version, that is, in such a way as to achieve the most complete realization of the highest goal of socialist production.

This task can be resolved by determining the indexes for the dynamics of each of the previously indicated components of economic growth; the obtaining of generalizing aggregational indexes that encompass the dynamics: a) of production in the form of indexes: of the dynamics of production potential, of the effectiveness of the use of production potential, of the dynamics of the social product and the net product (national income), the dynamics of social productivity of labor, of production wealth; of welfare in the form of indexes: of the dynamics of the physical volume (gross and per-capita) of national consumption, of the dynamics of the social infrastructure, of the dynamics of nonproduction wealth; and b) welfare in the form of indexes: of the dynamics of the physical volume (gross and per-capita) of national consumption, the dynamics of the social infrastructure, and the dynamics of nonproduction wealth. This totality of indexes is generalized in the form of integrating indexes of the dynamics of the direct process of production and economic growth and in the form of the resultant generalizing general index of the relationship of the integral index of welfare to the integral index of production.

In our opinion, this is the line diagram for researching and expressing the dynamics of the process being considered by us. The concrete realization of this diagram, obviously, requires special economic-theoretical and economic-mathematical elaborations.

It is obvious that, with the given material and human resources, the dynamics of the process of production, while subordinated to the requirements of the

basic economic law, change depending upon the concrete-economic situation at each given stage of socialism. The present-day stage of developed socialism creates the conditions for the achieving of the optimal balancing of all the components of those dynamics. However, in order to ascertain the conditions that control that state of balancing, factors that are of fundamental importance are the extreme limits (upper and lower), between which those dynamics occur.

The lower limit is the lowest possible rate of dynamics of the direct process of production beyond which, under the conditions of developed socialism, it in principle cannot fall (excluding factors that are beyond the economic ones: natural calamities, war). For capitalism there is no such limit. Economic and structural crises can throw production far behind and for long periods of time. Under socialism this limit does exist, and it isdetermined by the combination of the opportunities of the production potential and by the state of the demographic process. Theoretically, this lower limit of rates (to which the real dynamics of socialist production and economic growth do not fall) is represented by the rates that guarantee the maintenance of the already achieved per-capital level of welfare.

The upper limit is the maximum rates of buildup of one of the decisive components, or a number of them, in the dynamics being considered, with the remaining ones remaining stable. This also is only an abstract possibility which, in principle, contradicts the requirements both of the basic economic law and the law of proportionality.

Thus, the rate of the dynamics being considered lies within those limits and is objectively determined as the previously mentioned optimal rate -- the result of the optimal combination of the dynamics of all the components of the direct process of production. And this is the inwardly intercoordinated, balanced optimum for economic growth, which combines respectively the optimal rates of development of the production and scientific potential of society, and the fund for national consumption, and the production and social infrastructure while guaranteeing the ecological balance.

Obviously, the achievement of this optimization of the dynamics of the direct process of production and economic growth acts, at every specific moment, only as the predominant tendency, inasmuch as the concrete-economic conditions under which these processes occur modify the overall natural law each time to a greater or lesser degree.

The conditions of developed socialism at the present-day stage (the 11th Five-Year Plan and the foreseeable future) have an effect upon the formation of the optimality of the dynamics along two basic directions.

The first of them consists in the fact that what acts as the decisive condition for the development of the material-technical base of socialism and its gradual conversion into the material-technical base of communism is the

assimilation of all the achievements of the scientific-technical revolution in their organic combination with the advantages of socialism.

The development of the material-technical base is not only the buildup of the production potential, that is, all the material elements of the direct process of production, but also their fundamental modernization on the basis of the latest technology and the latest technological processes. This, in its turn, in many instances means the need to take the path of capital investments with a relatively delayed return[9]. The complete mechanization and rapid buildup of automation, acting as the decisive condition for crowding out, and then eliminating, unskilled manual and heavy labor, will at the same time act for a definite and rather prolonged period of time as a factor of the chiefly qualitative transformation of the direct process of production, rather than its quantitative growth. It is precisely this fact that will make itself known for a long period of time as a factor for the formation of the balanced state and optimal dynamics of material production. Something that is already acting in this direction is the complete increase in the effectiveness of the use of the factors of production and the improvement of the results of their functioning -- the creation of elements of the social product at the level of the highest achievements of domestic and worldwide technological processes with the maximum, economically justified economizing of the expended resources.

All these processes are inseparably linked with the development of the personal factor of the direct process of production. The personal factor, under the effect of the social conditions, can outstrip -- and, actually, frequently does outstrip -- with regard to the level of its development the requirements of production. This should be viewed as a possible phenomenon. This presupposed, obviously, high rates of buildup of the education fund both in the sector of the general-educational and skilled training of the mass-type working occupations (with the accelerated leveling of their proficiency makeup at the level of the highest or high proficiency), and the training of workers with a medium level of technical proficiency and of highest proficiency engineers, technicians, etc.). All these processes are intertwined and influence the process of the accelerated development of the social infrastructure and all the elements of spiritual production.

The further improvement of the material-technical base of socialism and the construction of the material-technical base of communism make increased requirements on the accelerated development and remodeling on the most up-to-date basis of the entire complex of elements in the production infrastructure (single transportation network, single network of all forms of communication, creation of a single computer-information network on the basis of electronic computers, etc.).

A special problem that has has developed historically in the optimizing of economic growth is the overcoming of the disproportions in production between its functional and its branch elements, among various types of tools of labor, among them and various types of objects of labor (raw-material components, structural materials, particularly metals, etc.), and elements of providing labor with energy and with information, as well as the increasing disproportions among the possibilities of the production potential (production

capacities) and the volume and structure of the personal factor of production; among the raw-material, energy, and processing branches; between subdivisions I and II in social production (prolonged lag in the group of production entities for consumer goods), and also between production and transport.

A very large problem is the overcoming of the lag in the agrarian sector behind the demands being made by the production and consumption sphere. Special comprehensive national-economic programs (the USSR Food Program; the Energy Program; the Program for the Production of Consumer Goods, which is currently being developed) have been called upon to eliminate these disproportions and to satisfy the country's developing social needs.

It is also necessary to note the special importance among the conditions for economic growth of the complete development of the industrial developed regions, the broad assimilation and accelerated development of new regions (TPK [territorial production complexes], especially the eastern ones), and the creation of industrial-agrarian developed regional complexes that are linked with relatively increased investments, primarily complexes of a pioneering nature. All this also forms an important specific element in the formation of a state of balance and optimal situation for economic growth for the prolonged period in the future.

Something else that acts in this direct is the opportunity that opens up under conditions of developed socialism and that extends itself more and more broadly -- the opportunity to subordinate this entire process to the realization of the higher goal of socialism: the rise in the national welfare and the complete development of society and the individual. The present-day production potential contains within itself the opportunity for the complete combination of the resolution of internal problems of its own development and the guaranteeing systematically and rapidly of the increasing factors in the rise of the national welfare. In this sphere, among the decisive factors of the formation of a state of balance and the optimal dynamics of economic growth, one could isolate first of all the guaranteeing of the rising level and the gradual equalization for all social segments of the current per-capita volume of national consumption (food supplies, nonedible consumer goods, durable goods, including household appliances intended for individual use) with the achievement in the foreseeable historical future of the guaranteeing of the needs of the entire population on the basis of scientifically substantiated norms. They also include the guaranteeing of the efficiently necessary volumes and levels of all elements of the social infrastructure for all members of society (housing, housing and municipal management, services sphere in the city and the countryside).

A substantially important role among the factors being considered belongs to guaranteeing the most healthful and more attractive working conditions, as well as the material prerequisites for developing the spiritual potentials of labor.

Among these factors, greater and greater importance is being attached to the creation of a balanced, healthful environment, and the cleaning up of the ecological conditions in areas where they have been subjected to undesirable deformations (the purification of large bodies of air and water, mass landscaping operations, the elimination of soil erosion, etc.).

Thus, the specifically socialist dynamics of the direct process of production and economic growth, while subordinated to the highest goal of production, are in a state of optimal combination with the processes of development and, in the future, the attainment of complete socialist welfare.

As a result of the organic interrelationship of the balanced state of the dynamics of the direct process of production and the consistently carried out course aimed at the accelerated resolution of the problems of complete socialist welfare, it is necessary to touch upon the question of the extent to which they have an effect upon the process of accumulation. This is all the more necessary in that this process determines in a decisive manner the dynamics of the direct process of production and of all elements of economic growth.

Within certain limits, the socialist norm of accumulation -- production and nonproduction -- is elastic. For certain segments of time it can be somewhat lower, as a result of which part of the increase in the volume of the consumption fund is form, and then it can grow again. Its corresponding changes can be discerned clearly in the process of the economic development of the USSR over the period of the past quarter of a century. Definite steps are also being taken in the 11th Five-Year Plan to achieve a certain reduction in the accumulation norm (relative to the physical volume of the national income).

However, even when guaranteeing the high effectiveness of production, any substantial or prolonged lowering of the accumulation norm is inefficient. The achieved high norm of accumulation is inwardly linked with the very nature of the socialist development of production. It is inseparably linked with the entire structure of production potential (both element-by-element, and of the branches). Therefore a considerable reduction in it, first of all, would cause a break in this structure and a loss in the effectiveness of the use of the created production potential; and, secondly, would undermine the material basis of the high and stable rates achieved by socialism in the growth of the national consumption fund. In addition, the resolution of the very large-scale tasks of the building of the material-production base on the highest technical basis with the assimilation of all the achievements that have been discovered by and that are being discovered by the NTR [scientific-technical revolution], and in general by systematic technical progress, like the creation of complete socialist welfare, substantially limits the opportunities of switching over the resources of accumulation to purpose of current consumption, that is, the increase of the volume and shore of the latter by drawing on the accumulation norm.

Of course, with all other conditions being equal, the same rates of economic growth can be guaranteed by drawing on a relatively less assets-intensive alternate of it. A large role must also be played by the efficient use of the accumulation fund. Reserves for this purpose are still very large (the struggle against the dispersal of capital investments, and against their prolonged freezing; the taking of all steps to reduce the costs of construction and to overcome the tendency toward the increase in value for

each unit of capacity in the equipment; the guaranteeing of a stable, high increase in the labor productivity of construction workers; etc.). However, stable, high optimal rates of economic growth are inwardly linked with a stable, high optimal norm for socialist accumulation[10].

FOOTNOTES

1. The increase in labor productivity "manifests itself in the reduction of the mass of labor with respect to the mass of the means of production which is to be activated by that labor, or in the reduction of the size of the subjective factor in the process of labor as compared with its objective factors" (K. Marks [Marx] and F. Engel's [Engels], "Soch." [Works], Vol 23, p 636).

2. "By an increase in the productivity force of labor," K. Marx wrote, "we understand here every change in general in the process of labor which reduces the work time that is socially necessary for the production of the given commodity... From the social point of view, labor productivity also increases with the economizing of labor. That economizing includes not only the economizing of means of production, but also the elimination of every kind of useless labor" (K. Marks, F. Engel's, "Soch.", Vol 23, pp 325, 539).

3. See: K. Marks, F. Engel's, "Soch.", Vol 25, Part I, p 288.

4. V. I. Lenin, "Poln. sobr. soch." [Complete Collected Works], Vol 36, p 188.

5. The increase in assets-intensity which has occurred in recent years was extremely considerable. In terms of each ruble of assets, the following amounts of national income were created: in 1970, 55 kopecks; in 1980, 40 kopecks. To a certain extent this was linked with the objective factors that were mentioned, but also, to a greater extent, as has been shown by analysis, with substantial shortcomings in the management mechanism.

6. "The relatively larger application of past labor as compared with live labor marks an increase in the productivity of social labor and an increase in social wealth" (K. Marks, F. Engel's, "Soch.", Vol 25, Part II, p 245).

7. "Of all the tools of production, the most powerful productive force," K. Marx noted, "is the revolutionary class itself" (K. Marks, F. Engel's, "Soch.", Vol 4, p 184).

8. K. Marks, F. Engel's, "Soch.", Vol 46, Part II, p 222.

9. "Society must compute in advance," K. Marx pointed out, "how much labor, how many means of production and manpower means it can expend without any of kind of detriment on those branches of production which, as, for example, the building of railroads, do not produce, for a comparatively long period of time, for a year or more, either any means of production or

manpower means and which, in general, throughout that period of time do yield any beneficial effect, but which, of course, remove from the overall annual production all those components -- labor, means of production, and manpower means" (K. Marks, F. Engel's, "Soch.", Vol 24, p 354).

10. On the pages of PLANOVOYE KHOZYAYSTVO there has also been an illuminating of the question of the inacceptability of reducing the accumulation norms and the need to search for additional investment resources for the long-term period (see articles by V. Kirpichenko and F. Klotsvog, PLANOVOYE KHOZYAYSTVO, No 11, 12, 1983). The author completely supports the views concerning the volume dynamics and the accumulation norms that are substantiated in those articles.

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REGIONAL DEVELOPMENT

SCIENTISTS, PLANNERS DEBATE BAM REGION DEVELOPMENT

Development Priorities Described

Moscow STROITEL'NAYA GAZETA in Russian 30 Sep 84 pp 1-2

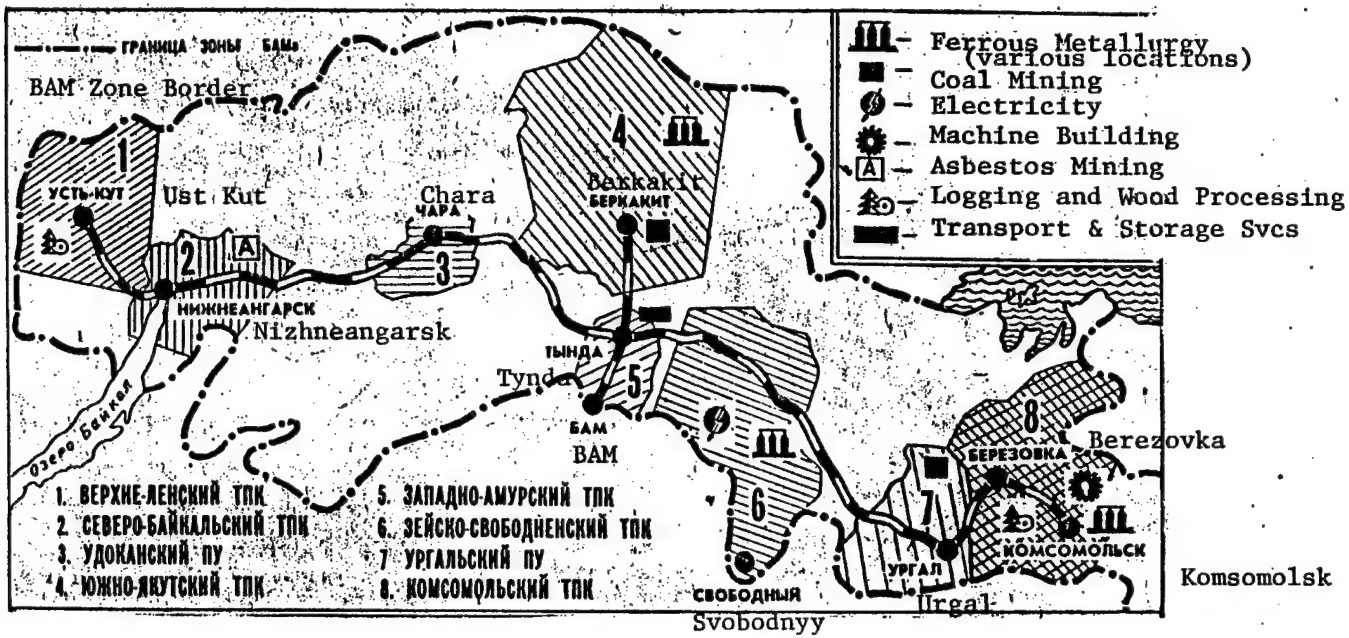
[Article by Yu. Sobolev: "Route to the Natural Storehouse"]

[Text] Yu. Sobolev, sector chief, Central Economic Scientific Research Institute, USSR Gosplan, comments on the sketch map of economic assimilation of the BAM zone.

The "golden" link-up on the BAM is a landmark. Everyone knows this now, but perhaps our descendants will appreciate the BAM builders' feat even more than we do today.

The main line will have a tremendous influence on the development of the economy of the eastern areas and on improving the territorial structure of our country's economy, and will be responsible for the appearance of new territorial production organizations in the near north, Siberia and the Far East. It will reduce the transit distance for goods from the areas west of Lake Baykal to the Pacific Ocean coast by almost 450 kilometers. The new main line will also become an important factor in establishing a major export base in the eastern part of the country. This will make it possible to speed up delivery of Siberian and Far Eastern exports to Japan and other countries of the Pacific Ocean basin. Transcontinental shipments of goods from the European countries to the Pacific Ocean basin will receive extensive development. But the economic importance of the BAM, naturally, is not limited merely to improving eastern area transport links. An extensive opportunity is opening up for drawing the richest mineral resources into economic exchange.

What is the BAM zone? Its territory exceeds one million square kilometers. Here a number of vast deposits have been revealed and prospected, the development of which previously would have been impossible due to their inaccessibility to transport. These include, most importantly, the Neryungrinskiy field of coking coal within the Yuzhno-Yakutsk coal basin, the Udokanskiy copper deposit, the Molodezhnoye chrysotile-asbestos deposit, a number of major sources of polymetallic ores, and tremendous forest reserves.



1. Verkhne-Lenskiy TPK [Territorial Industrial Complex]
2. Severo-Baykal'skiy TPK
3. Udokanskiy PU [Political Administration]
4. Yuzhno-Yakutskiy TPK
5. Zapadno-Amurskiy TPK
6. Zeysko-Svobodnenskiy TPK
7. Ural'skiy PU
8. Komsomol'skiy TPK

It is necessary to embark in the immediate future upon developing many kinds of these resources. Development of the coal deposits of Yuzhnoya Yakutiya has already begun, and the first territorial production complex [TPK] in the BAM zone is in operation. It must be noted that interest in the unique combination of natural riches in Yuzhnoya Yakutiya was displayed long ago by scientists, planners, and leaders of local party and economic organs. Back at the end of the 1940's, academician I. P. Bardin advanced the idea of developing here a new multi-sector industrial region of national importance. The Yuzhno-Yakutsk TPK is the first, but will not be the only in the BAM zone. On this vast territory will also appear such complexes as Verkhnelenskiy, Severo-Baykalskiy, Tyndinskiy, Zeyskiy, Komsomol'skiy and a number of major industrial nodes.

But first it is necessary to complete the industrial and social preparation of the territory. Therefore, in the first stage it is proposed that a significant share of capital investments be directed at "pioneering branches:" local transport, machine repair, construction materials industry and the agro-industrial complex. Then development of a rather broad selection of future specialized branches will begin, including coal, mining of non-ferrous metals and forestry. It is namely these branches which, in the future, will constitute the backbone of the entire economic system of the BAM zone. Forestry, as the most ready industry and one which has already today received some development, will receive priority development among them. With the putting into operation of the BAM, favorable transport conditions are created for expanding lumbering in adjacent areas. Access is already opening up to new areas with high quality forests in Irkutsk Oblast and Khabarovsk Kray, as well as the northern part of Amur Oblast. It is envisioned that large and medium capacity lumber industry enterprises will be organized there.

Coal mining will occupy second place in total production value. It is to provide fuel not only to consumers in the BAM zone itself, but also to many industrial enterprises of the entire Far East, as well as exports to countries of the Pacific Ocean basin, especially to Japan. This branch thus will solve the difficult problem of easing the strain on the fuel and energy balance in the region. For many years already the Far East has had to bring in large amounts of coal from Eastern Siberia. The volume of such distant shipments of coal from Chita Oblast alone has doubled over the last decade. The Yuzhno-Yakutskiy TPK, where a base of national importance in mining of coking coal is being formed, will become a main source of fuel. Today an open-pit mine for 13 million tons of coal per year is under rapid construction at the Neryungrinskiy deposit, as are a processing factory and GRES [State Regional Electric Power Plant].

Prerequisites for developing the mining industry also exist in the BAM zone. Already in the next few years the mining of tin will increase in the enterprises of Khabarovsk Kray, and there are plans to develop new branches in the future: copper ore at the Udokanskiy deposit, mining of Seligdar apatite ores, as well as organizing the production of non-chloric potassium fertilizers and aluminum oxide from sources in the Synnyrskiy Range.

In the more distant future, development of the Molodezhnyy deposit of chrysotile asbestos will be required. The unique resource of this deposit,

long-fibered asbestos, has a wide number of uses in various economic branches and high demand on the world market.

The presence of coking coal and iron ores in the single, rather compact area of Yuzhnoy Yakutiya promises favorable opportunities for developing a new metallurgical base in the BAM zone.

An important condition for successful implementation of the program of economic development of the BAM zone is timely preparation of the material base for construction. It will be necessary to develop essentially from scratch strong construction enterprises in almost all industrial centers.

Construction of local transport also is very important. This is one of the most important elements in opening up new territories. It will be necessary to lay spur-tracks from the main line to two future mining industries -- the Udokanskiy and Molodezhnyy GOK [Mining and Processing Combines]. Construction of a Berkakit - Tommot - Yakutsk railroad has been outlined. Construction of the sector from Berkakit to Tommot is to begin as early as the 12th Five-Year Plan.

Agriculture will receive the greatest development in the Verkhnelenskiy, Zeyskiy and Komsomol'skiy areas of construction concentration, which in the future must provide 3/4 of the production of agricultural products of the entire zone.

Developing a powerful industry in the BAM zone will be the most direct way to promote the further development of the productive forces of the country's eastern areas and the growth of their economic capability. This will make it possible to solve one of the most important tasks of the party's long term plans for economic and social development of the country.

Media Role in Siberian Development

Moscow SOVETSKAYA KUL'TURA in Russian 6 Oct 84 p 3

[Article: "Siberia - On the Map of Science"]

[Text] At the All-Union Scientific and Practical Conference in Novosibirsk, "The 'Siberia' Development Program and the Role of the Mass Media in its Implementation," our correspondents, O. Aleksandrov and M. Briman met with many scientists.

Yevgeniy Ivanovich Shemyakin, associate member, USSR Academy of Sciences [AN], began his conversation with us in Tynda, which the three of us had known back at the time when it was a small rayon center. Tynda became a city as a result of the BAM. But it might not have, and perhaps it would have been better if it had not. The fact is that in 1974, when the first komsomol shock detachment arrived here the mining scientists already knew quite a lot about the location of natural resources in the BAM zone. They recommended that the future city be built to fit not only the needs of the BAM builders, but also those of the future miners. Had this happened, today it would have been

possible to economize considerable resources on shipments of construction materials and on development of an infrastructure which will nevertheless have to encompass the locations where ores and coal are mined.

"No one is immune from errors," summed up our guide. "And our 'Siberia' program is aimed precisely at ensuring that their number is minimized in the development of the productive forces of this region, and that this development itself is implemented on the basis of the latest achievements of basic and applied sciences."

Today 50 academic institutes of the Siberian Department [SO] and more than 350 of the country's ministries and departments are engaged in research and development in connection with the "Siberia" program.

We won't exhaust the reader with figures. It is enough to say that already today Siberia has become a major fuel and energy base, and is not only compensating for the decline in the extraction of coal, oil and gas in the European part of the country, but also accounts for the entire growth in these vitally important resources.

Today Siberia requires new technological and technical solutions, the implementation of which may provide a significant savings of labor resources or energy consumption. And such solutions exist. Work of the Institute of Nuclear Physics related to the production of heat-resistant wires and high temperature cables has already given the economy 124 million rubles of savings. As a result of many years of joint work by specialists of the Institute of Cytology and Genetics of the SO of the USSR Academy of Sciences, and scientists of SO, VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin], a new type of meat and wool producing sheep has been developed which is distinguished by exceptionally high meat productivity and twice the usual wool clip. The centuries old dream of Siberian grain growers to obtain hardy types of winter wheat is being realized. "Al'bidum-12" is superior to "Mironovskaya-68," the standard type, in hardiness.

Academician A. A. Trofimuk, chairman of the scientific council, hero of socialist labor, and Academician A. G. Aganbegyan, director of the Institute of Economics and the Organization of Industrial Production of SO, USSR Academy of Sciences, presented reports at the conference.

For almost four hours the coordinators of the production program -- academicians, Acacemy of Sciences associate members, doctors of sciences -- spoke to the journalists. We, of course, were especially interested in the social and cultural aspects of the work and research of the "Program," and their implementation.

Problems of the ecology and environmental protection were categorized as matters of particular complexity.

"Will I at some point see a river bed which flows into our city and is polluted by its effluents? Will I recognize whether it has a sandy or rocky bottom?" wrote a ninth grader from Kuzbass in her composition. Behind these words lies not only a factual statement, but also the question, so far not

expressed: "Will I still be here after school or not." The ecological factor is today more and more manifesting itself.

What are the scientists doing in this direction? So far they are taking only the first steps.

No important achievements are possible if man is not at their center. For example, the economy cannot develop without a well-qualified and stable work force. And the latter is formed on the basis of good social living conditions.

Several years ago scholars made a prognosis of the reproduction of Siberian labor resources, studied the nature of cadre turnover, and made recommendations to reduce this turnover. Briefly put, the main task is the harmonious development of the productive and non-productive spheres. How are these recommendations being implemented? Unfortunately this question was not covered in enough depth at the conference. Perhaps one of the reasons is that economists and sociologists cannot yet boast about the results, although they are to some extent equal in value to the achievements of the scientific and technical cycle.

Whereas, for example, the future Tynda was planned before there was a "Program," the formation of the Kansko-Agchinskiy fuel and energy complex took place with the participation of scientists. However, they did not succeed in having any noticeable influence on the creation of a social infrastructure or on its rate of development. As a result there was a serious lag in the coming on line of the project's most important facilities. Of course, the USSR Minenrgo and Minugleprom energy and coal ministries were most guilty in this, but at the same it also indicates the still low authority of scientific recommendations in the sphere of social and cultural construction.

On this point we asked Academician A. G. Aganbegyan about the role of subjective factors in developing a social and cultural system. More simply put, what determines a supervisor's readiness to listen to the recommendations of science?

The academician took an example from the roads in the Buryat ASSR and Irkutsk Oblast. Anyone travelling in these areas, on his own hook so to speak, can see that the roads in Buryatiya are good while those in Irkutsk Oblast are disgusting. However, people in both places know perfectly well that road quality has not only an economic impact, but affects the social state of mind of the population. Knowing this, they are seeking opportunities to build and repair in Buryatiya. They are seeking and they are finding them. But in Irkutsk Oblast they previously sought and found opportunities to avoid construction.

From one can conclude: It is good when the subjective factor, the personal views of the leaders, play a positive role.

At the conference we spoke not only about the Siberia of today, but that of tomorrow as well. Science, which is first to look to the future, must tell us

the optimal forms for the organization of social processes. Unfortunately, such prognoses are still extremely poor in the "Siberia" program.

Despite a number of expressed desires and requests, the absence of efforts devoted to problems of hastening the development of culture in the huge region remains a vulnerable point in the "Siberia" program. This research concerns primarily the Siberia of the past. At the same time, patriotic initiatives have arisen in a number of Siberian areas, the sense of which is to expedite the development of the region's spiritual potential. Isn't it truly the scientists' duty to comprehend these processes and propose optimal ways of achieving the objective?

Besides the SO, USSR Academy of Sciences, the USSR Journalists Union was also a conference organizer. The role of the mass media in implementing the "Siberia" program is extremely great. Many publications have solid experience in bringing to light the development of science in Siberia, organizing various undertakings and initiatives, and forming public opinion on a given problem. But there is no analysis of work in this direction. And the history of our journalists indicates how much press organs can do in solving various economic, social and cultural tasks. We recall, for example, a discussion about Baykal. Yes, and the organization of this conference itself is clear testimony to the scientists' interest in cooperation with the press. However, their attitude so far is most often one of assessment: Did the material in the newspaper or journal turn out, from their point of view? The time has probably come for another approach. In connection with this we would like to concur with one of the opinions expressed at the conference: Such conferences should be conducted regularly.

BAM Economic Development Stages

Moscow EKONOMICHESKAYA GAZETA in Russian No 46, Nov 84, p 14

[Article by N. M. Singur: "The BAM: Stages of Economic Development"]

[Text] On 27 October 1984 a ceremonial meeting took place in Tynda, dedicated to the opening of rail traffic over the entire length of the Baykal-Amur Railroad Mainline. V. I. Dolgikh, candidate member, CPSU Central Committee Politburo and CPSU Central Committeesecretary, expressed greetings from the Central Committee to all participants in the construction and operation of the BAM.

In his greeting he stated: "This new and powerful transportation artery has great importance for the development of our country's economy, especially that of Eastern Siberia and the Far East, the development of major territorial production complexes, and the drawing of rich natural resources into economic exchange."

The editors receive letters, the authors of which are interested in prospects for accelerating BAM zone economic development.

Nikolay Makarovich Singur, chief of the Political Department of the Far East Department of Territorial Planning and Distribution of Productive Forces, USSR Gosplan, answers the readers' questions.

Back in July at the CPSU Central Committee Politburo session the need to accelerate the rates of development of BAM zone natural resources was discussed.

This will be a new type of economic development of vast areas. Several interim periods may be distinguished which differ qualitatively in terms of the social and economic tasks which they solve.

Priority and Long-Range Tasks

The first period will require primarily concluding the industrial and social amenities preparation of the zone territory and completing the construction of base facilities for the industrial infrastructure, including the construction and turnover for permanent operation of the BAM. Stemming from this, significant production capital investments will have to be directed during the 12th Five-Year Plan to development of the transportation system, building of repair machinery, energy and the energy network, the construction and construction materials industries, agro-industrial complex economic branches and the non-production sphere.

During this period it will also be necessary to complete prospecting and confirm reserves discovered in a number of mineral deposits in the BAM zone (the Apsatskiy coal deposit in Chita Oblast, the Kholodninskiy lead and zinc deposit in the Buryat ASSR, the Sobolinyy tin deposit in Khabarovsk Kray, the Sredne-Botuobinskiy and Verkhnechonskiy oil and gas deposits and others).

It will be necessary to conclude the work up of design and planning documentation or technical and economic justifications for developing a number of major mineral deposits, and to construct experimental production facilities in some of them.

In parallel with this it is necessary to accomplish development and begin industrial production of special construction, mining and transport equipment for use in the climactic and mountainous geological conditions of the BAM zone.

Accomplishing the tasks of the 12th Five-Year Plan will make it possible in the following period to create the conditions for intensive development of leading economic branches, and for solving major economic problems in the BAM zone.

The second period occupies the decade from 1990-2000, and solving a number of its problems will extend into the following period, beyond the year 2000.

In this decade the following basic branch, inter-branch and social problems of the BAM zone require solution:

-- developing major mineral deposits of economic importance;

-- developing a major new metallurgical base in the Far East, with the use of coking coal and iron ores from the BAM zone;

-- developing the fuel and energy base of Eastern Siberia and the Far East by using the coal deposits and hydro-power resources, as well as developing an oil producing industry in the northern areas of Irkutsk Oblast and the Nensko-Boyuobinskiy oil and gas region of the Yakutsk ASSR;

-- creating a mineral fertilizer industry in Eastern Siberia and the Far East, based on exploitation of the Seligdar apatite deposit, the Nepskiy potassium salts deposit, the potassium aluminous resources of the Synnyrskiy Range, as well as natural gas from Sakalin;

-- building major forest industry complexes based on the forestry resources of the western and eastern sections of the BAM zone;

-- developing all types of transport in the BAM zone as an integral part of an integrated transportation system of the southern part of the [Soviet] Far East.

Thus, during the next three five-year plans, a new industrially developed area will arise in the eastern part of the country along the trace of the Baykal-Amur Railway Main Line, as an integral part of the country's unified economic system.

This is also the main final task of the "Goal Oriented Comprehensive Program for Economic Development of the Baykal-Amur Railway Main Line (With Special Attention to the Stage for the Period Up to the Year 2000)," the development of which is carried out in USSR Gosplan. It is developed as an integral part of the plan for economic and social development of the country.

Conditions for Implementing the Program

One cannot fail to discuss the responsibility of ministries, departments and local economic organs for the soundness of measures provided for in the program and their implementation.

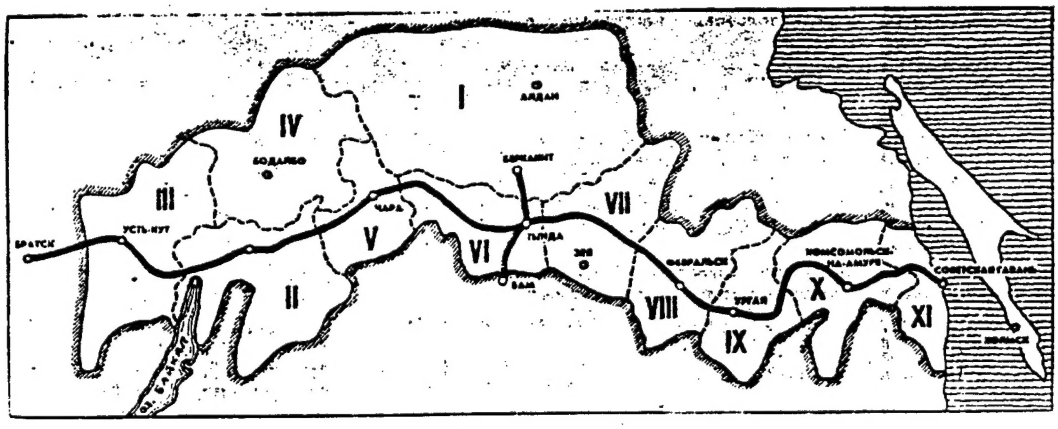
If one adds that dozens of ministries and departments have an interest in developing and implementing the program, it becomes clear that implementation depends largely on the development and adoption of organizational and economic measures which guarantee realization of the aims, step-by-step tasks and final objective under the economic branch principle of economic management. The danger of a bureaucratic approach by even one of the numerous partners in the program (for example, refusal to build a common construction industry facility or engineer networks in a city, workers' settlement, industrial node or territorial production complex [TPK]) automatically violates the balance and disrupts the time periods for implementing specific measures and achieving the program's aims. Unfortunately, such instances of a bureaucratic approach occurred and are occurring in the formation of the Yuzhno-Yakutsk TPK and the building of the cities of Tynda and Neryungri. Experience in forming territorial production organizations of various sorts in Siberia and the Far East permits one to conclude that it is necessary to accomplish a number of

organizational and economic measures which support implementation of the goal-oriented comprehensive program for economic development of the BAM zone.

Approval of the goal-oriented comprehensive program for economic development of the BAM zone as an economic plan by directing organs is essential. Making the program directive in character will increase the responsibility of economic organs in the Center and locally for its fulfillment.

The BAM zone is viewed in the program as a system of 11 territorial production complexes and industrial nodes (see diagram). This form of territorial organization of social production arose and justified itself under Siberian and Far Eastern conditions. All indices of the economic and social development of the BAM zone in the program are broken down into 11 TPKs and industrial nodes, each of which is located on the territory of an oblast, ASSR or kray.

BAM Zone Territorial Production Complexes and Industrial Nodes



I - Yuzhno-Yakutskiy TPK; II - Severo-Baykalskiy TPK; III - Verkhnelenskiy TPK; IV - Mamsko-Bodaybinskiy TPK; V - Udokanskiy Industrial Node [PU]; VI - Tyndinskiy PU; VII - Zeyskiy PU; VIII - Selemdzhinskiy TPK; IX - Ural'skiy PU; X - Komsomol'skiy TPK; XI - Sovetsko-Gavanskiy PU

The TPKs and industrial nodes are all in different stages of formation. For example, the Yuzhno-Yakutskiy and Komsomol'skiy TPKs are in the stage of intensive development, while the formation of the Udokanskiy industrial node will basically begin during the 14th Five-Year Plan and continue beyond the year 2000.

In connection with this, it is not possible at the present time to envision the entire complex of measures related to the future development of each TPK and industrial node in the program. Obviously, as the overall economic conditions are created (confirming the geological reserves of mineral

deposits, and transport, energy and other factors) with respect to each TPK and industrial node, it is necessary to work up regional planning projects and goal-oriented comprehensive programs for their future development, and have these documents approved in USSR Gosstroy and Gosplan. The existence of these documents will enable local and central planning and economic organs to make various decisions related to the development of a given TPK or industrial node knowledgeably, taking into account future prospects.

Current and long-range planning must be a basic instrument for implementing the program for the economic development of the BAM zone, as well as the programs for organizing and developing TPKs and industrial nodes.

Presently the main indices of economic and social development of the BAM zone are being worked out in USSR Gosplan. They are taken into account in annual and long-range plans. Their implementation is aimed at ensuring comprehensive development of productive forces in the BAM zone, and will facilitate increasing the economic potential of Siberia and the Far East.

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